

A SECOND NOTE ON THE *CARENIDES*, WITH  
DESCRIPTIONS OF NEW SPECIES.

BY THOMAS G. SLOANE.

Having ten new species to add to the *Carenides*, it has seemed to me a fitting opportunity to review the classification of the group, as far as the material at present in my hands will allow of my so doing.

Five years ago I drew up a synoptic table of the different genera into which the *Carenides* had then been divided.\* This table as I recognised at the time was far from being satisfactory, therefore in the present paper another tabular list of the principal genera of the group is attempted, which, though evidently defective in many points, seems founded on more natural characters and freer from artificiality than the former. The genera *Epilectus*, *Trichocarenum* and *Eutoma* have not been included in the table; the two former because no example of either has yet come under my notice; the last because, as yet, I have been unable to find any satisfactory characters to separate it readily from the *quadripunctatum* group of the genus *Carenum*, although it seems too useful and well known a division of the *Carenides* to be merged with *Carenum*. Sir William Macleay's genera *Carenoscaphus*, *Calliscapterus*, and *Platythorax*, with the sub-genera *Chariscapterus* and *Paliscaphus* formerly suggested by me, are now again united with the central genus *Carenum*.

It seems only necessary to add that the digitation of the external side of the anterior tibiae does not seem to me of sufficient classificatory value in the *Carenides* to warrant its being used as a character on which to found genera.

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\* P.L.S.N.S.W., 1888, III. (2) p. 1104.

*Table of the principal Genera of the tribe Carenides.*

- I. Palpi filiform. Anterior tibiæ with outer apical angle projecting strongly forward, and with two strong external teeth (*tridentate*), the tooth next the apical projection as near as, or nearer to the apex than where the inner apical spine rises..... *Scaraphites*.
- II. Palpi with last joint triangular or securiform. Anterior tibiæ with outer apical angle projecting strongly forward, the external edge either dentate or not; if dentate, the tooth next the apical projection placed further from the apex than where the inner apical spine rises.
- A. Anterior tibiæ with external edge dentate.
- a. Lateral border of elytra either strongly reflexed or thickened to form an upturned projection at each shoulder.
- b. Lower edge of orbit prominent or projecting forward in front below eye. (Form broad and heavy; colour entirely black. The genæ divided from the submentum and defined behind by a deep, oblique sulcus. The suborbital channel to receive antennæ single. Anterior tibiæ bidentate)..... *Euryscaphus*.
- c. Lower edge of orbit not prominent or projecting forward.
- d. Elytra costate on each side near lateral margin. Anterior tibiæ tridentate..... *Philoscaphus*.
- e. Anterior tibiæ tridentate, inferior ridge short, oblique, not extending forward past second large external tooth. Elytra foveate, or with a single row of strong punctures down middle of each, or (*L. cyaneum*, Fabr.) quadripunctate..... *Laccopterum*

- f.* Anterior tibiæ bi- or tridentate ;\* anterior femora with a puncture near lower margin of inner side towards apex. Elytra smooth (either quadri-, bi-, or impunctate) *Carenum*.
- g.* Form elongate. Anterior tibiæ bidentate ; anterior femora without a puncture near lower margin of inner side towards apex.
- h.* Antennæ moniliform..... *Neocarenum*.
- hh.* Antennæ filiform..... *Neoscapheus*.
- aa.* Lateral border of elytra narrow, and neither reflexed nor thickened to form an upturned projection at each shoulder.
- i.* Labrum and clypeus emarginate..... *Carenidium*.
- ii.* Labrum and clypeus truncate..... *Conopterum*.
- AA.* Anterior tibiæ with outer apical angle projecting strongly forward, the external edge not dentate (*unidentate*).
- k.* Front with a strong longitudinal sulcus on each side between the eyes..... *Monocentrum*.
- kk.* Frontal sulci not extending backwards between the eyes..... *Teratidium*.†

## Genus SCARAPHITES.

As a beginning towards tabulating the species of this genus I offer the following synoptic list of the species now in my possession.

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\* *C. rectangulare*, Mael., and *C. tibiale*, Sl., have the anterior tibiæ pluridentate externally, but the teeth above the three large ones are in reality merely strongly developed processes of the exterior ridge ; there are indications of these more or less prominent in other species—*e.g.*, *C. virescens*, Sl.

† In *Teratidium* the frontal sulci are weakly developed, and only show in that part of their course which turns obliquely outwards in front ; the part behind the anterior bend, which is so strongly marked in other *Carenides*, being wanting.

- a.* Anterior tibiæ with second external tooth not nearer apex than where inner apical spine rises. (Apex of intermediate tibiæ wide, a strong acute long spur projecting outward from just above apex ; the external edge armed with two short, prominent, acute teeth above the apical spur)..... *Sc. laticollis*, MacI.
- aa.* Anterior tibiæ with second external tooth nearer apex than where inner apical spine rises.
- b.* Lateral border of elytra not forming a thickened fold at humeral angles..... *Sc. pacificus*, Sl.
- bb.* Lateral border of elytra folded over and thickened at humeral angles.
- c.* External apical spur of intermediate tibiæ obtuse.
- d.* Pre-ocular sulcus deeply marked, a strong sinuosity between it and anterior angles of head..... *Sc. assimilis*, Sl.
- dd.* Pre-ocular sulcus deeply marked, no sinuosity between it and anterior angles of head..... *Sc. crenaticollis*, MacI.
- cc.* External apical spur of intermediate tibiæ acute.
- e.* Post-ocular prominences projecting strongly outwards beyond the eyes, their anterior margin truncate. . *Sc. rotundipennis*, Dej.





Comparing it with the specimen of *Sc. hirtipes*, Macl., alluded to below, the following differences may be noted :—

The lateral margins of the head have a well marked sinuosity on each side just in front of the pre-ocular sulcus ; the prothorax is much more strongly rounded off to the anterior angles ; the elytra are proportionately wider and more rounded on the sides, with the border forming a strong humeral fold, the posterior margin of which forms with the border a strong sinuosity. The tibiæ are thickly fringed with reddish hair ; the posterior are thick with their external edge convex in the middle.

#### SCARAPHITES HIRTIPES.

*Sc. hirtipes*, Macl., l.c., p. 148 ; *Sc. crenaticollis*, Macl. l.c., p. 147.

A single specimen of a species of *Scaraphites* which I found tolerably abundant under logs on the sand hummocks at Cape Otway in 1881 is in my collection named *Sc. crenaticollis*, Macl., by me from comparison with Sir William Macleay's type.\* Its dimensions are: length 28, breadth 11; head  $4.5 \times 7.5$ ; prothorax  $5.25 \times 9$ ; elytra  $13 \times 11$  mm. It differs from *Sc. hirtipes*, Macl., principally as noted above under the heading of that species ; the following features are, however, worthy of note :—The anterior part of the sides of the head narrow inwards on each side from the pre-ocular process to the anterior angles of the clypeus without any sinuosity ; the humeral fold of the elytral border is weakly developed, and joins the border behind by a gentle and even slope ; the posterior tibiæ are not thick, and their external edge is not convex ; the four posterior tibiæ are fringed with strong hair.

#### Genus EURYSCAPHUS.

In view of a new species, *E. atratus* (described below), offering very decided affinities to the typical *Carenums*, it seems needful

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\* Having been in Sydney while this paper was passing through the press I have been able to compare this specimen and that named *Sc. assimilis*, Sl., above with the types of *Sc. hirtipes* and *Sc. crenaticollis* in the Macleay Museum, and so to convince myself that the two latter are really one species ; of the two names *hirtipes* seems the more appropriate.

to offer a short definition of this genus, giving characters, a combination of which seems to be all that separates the species belonging to *Euryscaphus* from all other divisions of the *Carenides*.

Form generally very broad and heavy; colour entirely black; upper surface smooth; sub-orbital channel to receive antennæ single; lower edge of orbit overhanging the sub-orbital channel and prominent (usually projecting) in front; a deep oblique groove defining the genæ behind and dividing them from the submentum and gulæ; anterior tibiæ bidentate.

The species of this genus are in some confusion owing to the vagueness of de Castelnau's descriptions; this confusion has been further increased by the difference in shape between the sexes, resulting in the ♂ and ♀ of certain species having been described as different species—e.g., *E. bipunctatus*, Macl., = ♂ of *E. obesus*, Macl. Having seen some of de Castelnau's types in the Howitt Collection at the Melbourne University, and having collected specimens, both male and female, of *E. obesus*, Macl., I am enabled to throw a little light on some of these points. In the genus *Euryscaphus* the ♂ usually has the elytra more emarginate at the base, and broader and more strongly rounded on the sides than the ♀, so that it becomes necessary in describing a species of this genus to determine and record the sex of the type. It may be worth noting here that I consider, from the descriptions, Mr. Blackburn's three species *E. tatei*, *E. chaudoiri*, and *E. sulcicollis* to be founded on female specimens.

The following synoptic list of the species without discoidal punctures on the elytra now in my possession is offered as a contribution towards settling a few of the difficulties in the way of determining at least some of the species of the genus. The table is unavoidably founded on female specimens, no male specimen of four of the species being available.

- a. Posterior angles of prothorax rounded, the base rounded between them.
- b. Reflexed border of elytra ending at humeral angle and forming a thick upturned humeral projection.

- Size very large ; elytra broad,  
widely rounded behind..... *E. waterhousei*, Macl.
- Size moderate ; elytra narrow, and  
narrowly rounded behind ..... *E. atratus*, Sl.
- bb.* Reflexed border of elytra extending  
past humeral angle on to base,  
narrow, and not forming a thick-  
ened projection at shoulder.
- c.* Posterior margin of prothorax  
rounded and decidedly lobate,  
posterior angles not marked ... *E. minor*, Macl.
- cc.* Posterior margin of prothorax  
very lightly rounded, hardly  
lobate, the posterior angles  
rounded, but well marked.
- Elytra lightly convex, narrowed  
to apex ..... *E. politus*, Sl.
- Elytra very convex, widely  
rounded at apex ..... *E. concolor*, Sl.
- aa.* Posterior angles of prothorax sharply  
upturned and rectangular, the base  
truncate between them ..... *E. subsulcatus*, Blkb.

## EURYSCAPHUS WATERHOUSEI.

♂. *Scaraphites waterhousei*, Macl., Trans. Ent. Soc. N.S.W.,  
1864, i. p. 147. ♀. *Euryscaphus titanus*, Sl., Proc. Linn. Soc.  
N.S.W., 1889, iv. (2) p. 1288.

I have recently seen a specimen of *E. waterhousei*, Macl., from  
the MacDonnell Ranges, belonging to Mr. C. French. It is a  
male, and from a comparison of it with the type of *E. titanus*, Sl.,  
I am able to state without doubt that the latter is merely the  
female of *E. waterhousei*; the differences on which I separated it  
from that species being entirely sexual.

## EURYSCAPHUS ATRATUS, n.sp.

♀. Oblong-oval, convex, smooth, black; prothorax subcordate; elytra impunctate, humeral angles thick, and forming a prominent upturned projection.

Head transverse ( $5 \times 8.5$  mm.), smooth (excepting for a few minute scratches); frontal sulci not connected behind, parallel forward, curving obtusely out in front in a linear course; eyes not prominent; lower margin of orbit projecting forward in a short obtuse prominence; two supra-orbital punctures on each side. Antennæ subfiliform, thick; second joint very short; apical joint obtuse. Prothorax subcordate ( $7 \times 11$  mm.), convex; sides lightly rounded before posterior angles, gently and obliquely narrowed behind them, lightly sinuate between posterior angles and middle of base; posterior angles rounded off; base rounded, widely and strongly produced backwards; anterior angles rounded, very lightly advanced; anterior margin sinuate; border thick, reflexed, hardly more prominent at posterior angles, narrow without any median sinuosity on base; a slight triangular projection at the sinuosity on each side of base; marginal channel narrow; median line lightly impressed; a lightly-marked transverse impression across the base; two marginal punctures, the anterior rather nearer the anterior angles than usual in the genus. Elytra impunctate, ovate ( $16 \times 12$  mm.), widest a little before middle, lightly rounded on sides, a little narrowed to base, greatly narrowed to apex, convex; base almost truncate; shoulders prominent; the border forming a thick obtuse projection at the humeral angles; margin very narrow on sides and apex, wider, but not flattened, behind shoulders; border reflexed, not extending past humeral angles; a row of small punctures on base of each elytron; a row of fine punctures along lateral margins, these more closely placed towards base; suture not forming an impression. Prosternum deeply channelled between coxæ. Anterior tibiæ bidentate, three fine external teeth above the two large ones.

Length 31-33, breadth 12-13 mm.

*Hab.*—Bourketown district, Queensland.

I am indebted to C. French, Esq., for the specimen described above ; another (also a ♀) is in the possession of that gentleman.

A very distinct species ; it seems most allied to *E. waterhousei*, Macl., among previously described species, but the two species have not much resemblance. Their great difference in size in itself thoroughly distinguishes them from one another.

#### EURYSCAPHUS MINOR.

*E. minor*, Macl., Trans. Ent. Soc. N.S.W., 1865, i. p. 189 ; *Scaraphites affinis*, Casteln., Trans. Roy. Soc. Victoria, 1868, VIII. p. 130 ; *E. arenarius*, Sl., Proc. Linn. Soc. N.S.W., 1888, III. (2) p. 1108.

I have previously published the identity of *E. arenarius*, Sl., with *E. minor*, Macl. ; and have now to add *Scaraphites affinis*, Casteln., as also a synonym. The type of *Sc. affinis* is in the Howitt Collection at the Melbourne University, where I was able in November last year, through the kindness of Professor Spencer, to examine it ; a comparison of the type with a specimen of *E. minor* showed it to be merely that species. It may also be noted that I found specimens of *E. minor* labelled *Scaraphites lucidus*, Chaud., in the Howitt Collection ; this seems certainly a case of mistaken identity, for the description of *Sc. lucidus* is undoubtedly that of a true *Scaraphites*.

#### EURYSCAPHUS POLITUS, n.sp.

♀. Robust, black, shining, smooth ; elytra strongly emarginate at base, narrowed to apex, impunctate.

Head subquadrate ( $5 \times 7.75$  mm.), smooth ; frontal sulci connected behind by a curved impression, subparallel, sinuous forward, curving out in front in a linear sinuous course ; pre-ocular sulcus well-marked ; eyes round, rather prominent ; lower margin of orbit projecting lightly and roundly in front ; two supra-orbital punctures on each side. Antennæ filiform ; apical joint fusiform. Prothorax transverse ( $5.75 \times 10.25$  mm.), depressed, sides rounded ; anterior angles strongly and roundly advanced ; anterior margin very lightly sinuate ; posterior angles



rounded, but well-marked; base short, bisinuate, the middle very lightly and broadly produced backwards; border wide, its edge hardly upturned in front, becoming more decidedly so backwards, very strongly and obliquely reflexed at posterior angles, narrower and with a very light median sinuosity on middle of base; marginal channel wide; median line lightly impressed; some transverse striolæ across median line near base, but basal part of prothorax hardly defined; two marginal punctures on each side as usual. Elytra broadly ovate ( $13 \times 11.5$  mm.), widest before the middle, lightly rounded on sides, very little narrowed to base, decidedly narrowed to apex, convex; base lightly and broadly emarginate; shoulders not prominent; humeral angles well marked, obtuse, rather square; margin narrow on sides, wider towards apex, wide and flat behind shoulders; border reflexed, very strongly so at shoulders, extending past humeral angles, not ending in a thickened humeral projection; a row of small punctures on base of each elytron; a row of lightly impressed punctures along lateral margins; suture well-marked. Prosternum almost flat between the coxæ, with a very light median excavation. Anterior tibiæ bidentate, three or four small external teeth above the two large ones.

Length 27, breadth 11.5 mm.

*Hab.*—MacDonnell Ranges, Central Australia.

Received from C. French, Esq.

This species is allied to *E. minor*, Macl., from which the broader prothorax with more strongly marked posterior angles and the middle of the base less produced backwards distinguish it. From *E. concolor*, Sl., also an allied species, the far less convex elytra much more narrowed to the apex at once separate it. There seems a possibility that *E. politus* may prove to be *Scaraphites hopei*, Casteln., as Count de Castelnau says that species might be taken for *E. minor*, Macl., and *E. politus* has a decided superficial resemblance to *E. minor*; but *Sc. hopei* is said to have the "humeral angles rounded, and not advanced"; the inference being suggested that de Castelnau considered these angles advanced, but not rounded, in *E. minor*; in *E. politus* they are less rounded

but rather more advanced than in *E. minor*. De Castelnau's brief note on *Sc. hopei*, which cannot be called a description, also gives me the impression that it should have the prothorax more rounded behind than *E. minor*, not less so, as in *E. politus*.

EURYSCAPHUS CONCOLOR, n.sp.

Robust, black, shining; elytra very convex, broadly rounded at apex, impunctate.

♂. Head subquadrate, transverse ( $6 \times 8.75$  mm.), smooth; frontal sulci connected behind by a faint curved impression, subparallel forward, curving obtusely out in front in a sinuous course; pre-ocular sulcus well marked, oblique; eyes round, rather prominent; lower margin of orbit lightly and obtusely projecting in front; one supra-orbital puncture on each side. Antennæ filiform; apical joint narrow, fusiform. Prothorax short, transverse ( $6.5 \times 11.5$  mm.); sides rounded; anterior angles broadly and lightly advanced; anterior margin lightly sinuate; posterior angles rounded, but strongly marked; base short, bisinuate, the middle broadly and lightly produced backwards; border wide, reflexed, very strongly so at posterior angles, narrow with an obsolete median sinuosity on middle part of base; marginal channel wide; median line lightly impressed; a transverse striola defining basal part; two marginal punctures on each side, as usual in the genus. Elytra broad ( $13.5 \times 13.25$  mm.), strongly rounded on sides and at apex, very convex; base broadly and decidedly emarginate; humeral angles well marked, almost square; margin narrow on sides, wider towards apex, wide and flat behind shoulders; border reflexed, very strongly so at shoulders, extending past humeral angles, not ending in a thickened humeral projection; a row of small punctures on base of each elytron; a row of lightly impressed punctures along lateral margins; suture linear, not deeply impressed. Prosternum widely channelled between the coxæ. Anterior tibiæ bidentate; three small teeth above the two large ones.

Length 30, breadth 13.25 mm.



♀ agreeing with ♂ in everything except the shape of the elytra. Head  $5.75 \times 9$  mm. Prothorax  $6.5 \times 12$  mm. Elytra broad ( $15.5 \times 13.5$  mm.), lightly rounded on sides, hardly narrowed to base, strongly declivous behind and on sides; base subtruncate, lightly emarginate; otherwise as in ♂. Length 15.5, breadth 31.5 mm.

*Hab.*—Fowler Bay, South Australia.

Two specimens (♂ and ♀) have been sent to me by C. French, Esq., who has kindly given me one; the ♂ is in his collection.

As usual in the genus, the ♂ in this species has the elytra much more dilatate on the sides than the ♀, and more emarginate at the base, which gives them an altogether shorter appearance. The elytra of the ♀ are much more declivous towards the sides and apex, and have altogether a more decidedly convex and less rotundate form than those of the ♂. It is allied to *E. politus*, Sl., and, comparing the ♀, it may be noted that the prothorax is the same shape, but *E. concolor* has the elytra much more convex, less rounded on the sides, and far more widely rounded at the apex.

#### EURYSCAPHUS OBESUS.

♀. *Scaraphites obesus*, Macl., Trans. Ent. Soc. N.S.W., 1863, i. p. 65; *E. ferox*, Sl., Proc. Linn. Soc. N.S.W., 1888, iii. (2), p. 1109. ♂. *E. bipunctatus*, Macl., l.c. p. 189; *Scaraphites howittii*, Casteln., Trans. Roy. Soc. Victoria, 1868, viii. p. 130.

In spite of the difference in shape between *E. obesus*, Macl., and *E. bipunctatus*, Macl., I am certain they are merely the sexes of one species. It is found over a large area of country, I myself having taken it on the Lachlan, Murrumbidgee, and Murray rivers; the type of *E. bipunctatus* came from South Australia, and the type of *Scaraphites howittii*, Casteln., from Port Lincoln, S.A. In all, I have collected thirteen specimens of this species, the sex of all of which I have determined, and have found eight, identical with *E. bipunctatus*, to be males; and five, identical with *E. obesus*, to be females. I have found specimens of both sexes at the one spot about thirty miles south of the Murrumbidgee River at Narrandera. Like *E. minor*, Macl., it lives

solitarily in holes about a foot long dug by the occupant, and usually placed under a fallen log in dry forest country. The type of *Scaraphites howittii*, Casteln., in the Howitt Collection, I have compared with a male specimen of *E. obesus*, MacL., and found it the same species.

#### Genus LACCOPTERUM.

It seems clear that *Carenum cyaneum*, Fabr., should be placed in this genus; its evident affinity being to *Lacopperum deauratum*, MacL. In his review of the *Carenides* in 1887, Sir William Macleay omitted to place his *Carenum digglesi* in this genus which is its proper place. *Carenum multiimpressum*, Casteln., is another species, evidently a *Lacopperum*, that Sir William Macleay has not included in his list of the genus. In Mr. Masters' valuable Catalogue all these species appear under the genus *Carenum*.

#### Genus CARENUM.

As explained in the introductory note to this paper, I now prefer to use the generic term *Carenum* in as wide a sense as possible, rather than to break up the groups of species that can be included in it into genera; if the latter course be adopted it will become necessary, if any degree of uniformity of classification is to be maintained, to add several new generic names to the *Carenides*, there being several described species which are certainly as much entitled to be considered types of new genera as those on which the genera excluded in this paper have been founded; further, it will be noticed on examining a full series of species, that sometimes species which seem so different as apparently to justify their being placed in different genera, are so linked together by other species that it becomes almost impossible to indicate any break in the chain. Indeed the whole tribe of the *Carenides* proves so closely connected, as our knowledge of the immense number and variety of the species increases, that it becomes more and more difficult to find good and satisfactory distinctions between the recognised genera.

The genus *Carenum*, as recognised in this paper, contains, at present, ninety-six described species; these I have endeavoured to arrange in natural groups in the tabular list which follows. The species are believed to be in their proper places according to the system of classification adopted; those species, the position of which I have felt unable to be confident about, are noted separately after the table.

*Table grouping the species of the genus Carenum.*

- I. Suborbital channels to receive antennæ straight, single, not dividing the genæ from the gulæ. Penultimate joint of labial palpi narrow, and evidently longer than last joint. Anterior tibiæ tridentate (*sometimes with some smaller teeth above the three large ones*) or bidentate, with some small teeth above the two large ones. Inflexed margin of elytra wide behind first ventral segment.
  - A. Reflexed border of elytra extending past humeral angle on to base, narrowly reflexed and not forming a thickened projection at shoulder. *C. brevicolle* group
  - B. Reflexed border of elytra ending at humeral angle and forming a thickened upturned humeral projection.
    - a. Elytra impunctate.
    - b. Prothorax with posterior angles prominent and strongly marked; the base almost truncate on each side behind them, and with a short median lobe. Anterior tibiæ tridentate. *C. transversicolle* group.
    - bb. Prothorax with posterior angles rounded off.
    - c. Prothorax with a well-marked basal lobe. Anterior tibiæ tridentate. *C. macleayi* group.
    - cc. Prothorax without any basal lobe. Anterior tibiæ bidentate. *C. levipenne* group.
    - aa. Elytra bipunctate.
    - d. Anterior tibiæ tridentate, with middle of lower side elevated into a serrate ridge (*inferior ridge*) extending from near base to apex.

- e.* Prothorax with posterior angles prominent, almost rectangular; the base truncate. *C. rectangulare* group.
  - ee.* Prothorax with posterior angles rounded off.
  - f.* Frontal sulci short, subparallel. *C. dispar* group.
  - ff.* Frontal sulci diverging strongly backwards.
  - g.* Two supra-orbital punctures near each eye; prothorax with marginal channel tripunctate. *C. campestre* group.
  - gg.* One supra-orbital puncture near each eye; prothorax with marginal channel bipunctate. *C. habitans* group.
  - dd.* Anterior tibiæ bidentate; the inferior ridge, when viewed from below, almost parallel with exterior ridge and not extending forward past upper large external tooth. The apical part of the lower side of anterior tibiæ forming a broad apical plate. *C. marginatum* group.
- II. Suborbital channel to receive antennæ wide, divided longitudinally in middle by an oblique ridge, lower part of channel dividing the genæ from the gulæ. Penultimate joint of labial palpi short, thick. Elytra quadri-punctate. Anterior tibiæ bidentate.
- h.* Inflexed margin of elytra not narrow behind first ventral segment. *C. interruptum* group.
  - hh.* Inflexed margin of elytra narrow behind first ventral segment.
  - i.* Frontal sulci not diverging backwards to define the space between them and the eyes. *C. scaritioides* group.
  - ii.* Frontal sulci diverging backwards and defining posterior margin of the space between them and the eyes.
  - k.* The space between the frontal sulci having its base rounded and not filling all the interval between their posterior extremities. *C. bonellii* group.
  - kk.* The space between the frontal sulci having its base truncate and filling all the interval between their posterior extremities. *C. 4-punctatum* group.

List of the species of the genus *Carenum* arranged in groups according to the table given above.

## C. BREVICOLLE GROUP.

*C. brevicolle*, Sl.

## C. TRANSVERSICOLLE GROUP.

*C. transversicolle*, Chaud.

## C. MACLEAYI GROUP.

*C. macleayi*, Blackb.

## C. LÆVIPENNE GROUP

*C. ineditum*, Macl.

*C. lævipenne*, Macl.

*C. politum*, Westw.

## C. RECTANGULARE GROUP.

*C. rectangulare*, Macl.

*C. tibiale*, Sl.

## C. DISPAR GROUP.

*C. breviforme*, Bates.

*C. cupreo-marginatum*, Blackb.

*C. dispar*, Macl.

*C. habile*, Sl.

*C. iridescens*, Sl.

*C. opulens*, Sl.

*C. porphyreum*, Bates.

*C. rugatum*, Blackb.

*C. smaragdulum*, Westw.

*C. subcyaneum*, Macl.

*C. virescens*, Sl.

## C. HABITANS GROUP.

*C. habitans*, Sl.

## C. CAMPESTRE GROUP.

*C. campestre*, Macl.

*C. coruscum*, Macl.

*C. distinctum*, Macl.

*C. elegans*, Macl.

*C. odewahni*, Casteln.

*C. rufipes*, Macl.

*C. speciosum*, Sl.

*C. splendens*, Casteln.

## C. MARGINATUM GROUP.

*C. batesi*, Masters.

*C. carbonarium*, Casteln.

*C. convexum*, Chaud.

*C. decorum*, Sl.

*C. frontale*, Macl.

*C. fugitivum*, Blackb.

*C. ianthinum*, Macl.

*C. kingi*, Macl.

*C. lævigatum*, Macl.

*C. laterale*, Macl.

*C. marginatum*, Boisd.

*C. murrumbidgeuse*, Macl.

*C. nitescens*, Macl.

*C. planipenne*, Macl.

*C. politulum*, Macl.

*C. propinquum*, Macl.

*C. puncticolle*, Macl.

*C. punctulatum*, Macl.

*C. striato-punctatum*, Macl.

*C. subporcatulum*, Macl.

*C. subplanatum*, Bates.

- C. MARGINATUM GROUP (contd.).* *C. nigerrimus*, Macl.  
*C. subcostatum*,\* Macl. *C. oblongus*, Macl.  
*C. terræ-reginæ*, Macl. *C. scaritoides*, Westw.  
*C. vicinum*, Sl. *C. striato-punctulatum*, Macl.  
*C. viridi-marginatum*, Macl. *C. subquadratum*, Macl.

*C. INTERRUPTUM GROUP.**C. BONELLII GROUP.*

- C. anthracinum*, Macl. *C. affine*, Macl.  
*C. cyanipenne*, Macl. *C. bonellii*, Brullé.  
*C. ebeninum*, Casteln. *C. brisbanense*, Casteln.  
*C. inconspicuum*, Blackb. *C. chaudiéri*, Macl.  
*C. interruptum*, Macl. *C. coracinum*, Macl.  
*C. obscurum*, Macl. *C. opacum*, Macl.  
*C. obsoletum*, Macl. *C. ovipenne*, Macl.  
*C. purpureo-marginatum*, Macl. *C. pusillum*, Macl.  
*C. sexpunctatum*, Macl. *C. simile*, Macl.  
*C. submetallicum*, Macl.  
*C. triste*, Macl.

*C. SCARITIOIDES GROUP.*

- C. ambiguum*, Macl. *C. QUADRIPUNCTATUM GROUP.*  
*C. atronitens*, Macl. *C. quadripunctatum*, Macl.  
*C. devastator*, Casteln. *C. lucidum*, Macl.  
*C. ignotum*, Sl. *C. angustipenne*, Macl.  
*C. intermedium*, Westw.

Species of *Carenum* omitted from the list above, because no specimen has been available for reference, and their position seems doubtful :—

*C. perplexum*, White, seems a very isolated species ; I doubt if it is very closely allied to *C. levipenne*, Macl.

*Platythorax interioris*, Sl., seems to offer affinities to both the *C. dispar* and *C. transversicollis* groups.

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\* *C. subcostatum* seems more naturally placed in the *C. marginatum* group than anywhere else ; sometimes the discoidal punctures of the elytra are present.

*Calliscapterus foveolatus*, Macl., and *C. viridiæneus*, Macl., are not likely to belong to any of the "groups" given above. They are probably more allied to *Laccopterum cyaneum*, Fabr., than to any other described Carenid.

*Carenum parvulum*, Macl., is probably allied to *Laccopterum cyaneum*, Fabr., rather than to *Carenum dispar*, Macl., or *C. campestre*, Macl.

*Carenum nickleri*, Ancey, is too vaguely described for its identification to be possible without an actual inspection of the type. It seems allied to *C. campestre*, Macl., but that it is a previously undescribed species seems very doubtful, and the description certainly bears no internal evidence of such being the case.

*Carenum gawlerense*. This name is not found in Mr. Masters' Catalogue, but it occurs in Sir William Macleay's list of the genus *Carenoscaphus*,\* where it is attributed to de Castelnau. It cannot, however, be recognised, the only authority † for it being merely a suggestion by Sir William Macleay.

*Carenum sumptuosum*, Westw., and *Carenoscaphus viridissimus*, Macl., are elongate species with affinities towards *Carenum quadripunctatum*, Macl.; I am doubtful of their position. The Rev. Thomas Blackburn has recorded his opinion that *C. sumptuosum* should be considered as belonging to the genus *Eutoma*.‡

*Carenum lepidum*, Sl., requires, I think, a separate group. Unfortunately my specimen has been accidentally destroyed.

*Carenum de visii*, Macl., is a remarkable species. I remember seeing the type in the Brisbane Museum in the year 1888, when I was struck by its great dissimilarity to any other *Carenum* I had ever seen. Speaking from memory I think it is more allied to the species named *Euryscaphus atratus* in this paper than to any other known Carenid.

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\* P.L.S.N.S.W., 1887, ii. (2) p. 120.

† Trans. Ent. Soc. N.S.W., 1869, ii. p. 59.

‡ P.L.S.N.S.W. 1889, iv. (2), p. 445.



## CARENUM BREVICOLLE, n.sp.

Broad, depressed; prothorax twice as wide as long, strongly rounded on sides, subtruncate behind, posterior angles prominent, squarely marked; elytra widely truncate at base, broadly rounded at apex, impunctate, the margin not forming a projection at shoulders, inflexed margin wide; anterior tibiæ strongly tridentate.

Head, undersurface (including inflexed margins of elytra), and legs black, prothorax purple-black, widely margined with green, elytra dark purple, with greenish reflections towards sides, margin green. Head subquadrate ( $4.5 \times 6.25$  mm.), smooth; frontal sulci deep, curved, diverging a little backwards, turning lightly out in front in a linear course; pre-ocular sulcus strongly marked; eyes deeply set in orbits, not prominent; one supra-orbital puncture on each side. Antennæ light, subfiliform, a little compressed; second joint shorter than third; apical narrow, elongate-oval. Prothorax twice as wide as long ( $4.75 \times 9.5$  mm.), depressed; sides strongly rounded; anterior margin very lightly emarginate, the angles roundly advanced; posterior angles rounded, but very prominent and strongly marked; base almost truncate, bisinuate, the middle very widely and shortly produced backward, the sinuosity on each side very light; border widely reflexed, very prominently so at posterior angles, narrow and without any sinuosity on middle part of base; marginal channel wide, obsolete on middle of base; median line strongly impressed; two marginal punctures on each side as in *C. marginatum*, &c. Elytra broad ( $12.75 \times 9.75$  mm.), lightly rounded on sides, hardly narrowed to base, widely rounded at apex, lightly convex; base wide, truncate; humeral angles rounded, but well-marked; margin wide, becoming wider towards apex and near shoulders; border reflexed, extending past humeral angles, very lightly turned back, but not forming any projection, at shoulders; a row of punctures on base of each elytron; a row of strongly impressed, separate punctures along lateral margins; suture strongly impressed, linear; inflexed margin wide. Prosternum deeply and widely channelled between coxæ. Legs light; anterior tibiæ tridentate; the teeth long, light, and wide apart; exterior ridge with two or three projections above large teeth;



inferior ridge strongly serrate, extending along middle of lower side of tibiæ to apex; apical plate with a long acute tooth projecting below tarsus; intermediate tibiæ with a very short external tooth at apex.

Length 25, breadth 9·75 mm.

*Hab.*—Nullabar Plains, Eucla District. A single specimen in the collection of C. French, Esq., Melbourne.

An isolated species; the short wide prothorax rounded on the sides and almost truncate behind, and the broad rather depressed elytra without discoidal punctures and with the lateral border extending on the base past the humeral angle are noticeable features that thoroughly separate it from all described species of the genus. It is the only species of the genus *Carenum* known to me in which the lateral border of the elytra is not thickened to form an upturned projection at the shoulders.

#### CARENUM LÆVIPENNE.

*C. lævipenne*, MacI., Trans. Ent. Soc. N.S.W. 1863, i. p. 59;  
*C. lævicolle*, Sl., Proc. Linn. Soc. N.S.W. 1888, iii. (2), p. 1116.

I am now able to compare the type of *C. lævicolle*, Sl., with a specimen of *C. lævipenne*, MacI., and can find no difference between them. It is impossible to think the locality given by me for *C. lævicolle*, viz., Johnstone River, Queensland, can be a correct one; I received my specimen, as coming from the Johnstone River, among a lot of other Coleoptera from different parts of Australia, but do not know the authority for the locality.

It may be noted that in *C. lævipenne*, MacI., the supra-orbital punctures of the head and the marginal punctures of the prothorax are wanting; in *C. inelutum*, MacI., an allied species, a single supra-orbital puncture is present, but there is no trace of any punctures along the marginal channel of the prothorax.

#### CARENUM TIBIALE, n.sp.

♀. Robust; prothorax widely margined, truncate on base, the posterior angle sub-rectangular; elytra bipunctate, convex, greatly

raised above the plane of the prothorax, inflexed margin wide; anterior tibiæ multidentate externally.

Black, polished; prothorax and elytra with a narrow green margin. Head subquadrate ( $4 \times 6.5$  mm.), smooth; frontal sulci deep, parallel backwards, curving outwards in front in a deeply marked course; pre-ocular sulcus very lightly impressed; pre-ocular process small; clypeus truncate behind labrum, the lateral projections strong and triangular; one supra-orbital puncture on each side; eyes deeply set in orbits, not prominent. Mandibles long and strongly toothed. Mentum wide; the median tooth strong, keeled. Palpi with last joint triangular; penultimate joint of labial long, narrow, plurisetose; second and third joints of maxillary with two or three strong setæ in front. Antennæ slender, lightly compressed, not thicker towards apex; second joint much shorter than third; apical joint short, obtuse. Prothorax transverse ( $5.4 \times 9.3$  mm.), depressed, gently declivous towards sides in front; sides rounded, hardly at all so in middle of their length, more decidedly and equally so towards anterior and posterior angle; anterior margin truncate between anterior angles, these broadly and roundly advanced; posterior angles sub-rectangular, prominent, their summit rounded; base truncate, very lightly bisinuate, the middle part very lightly and widely produced backwards; border widely reflexed on sides, very prominently so at posterior angles, narrower and without any sinuosity on middle of base; marginal channel wide, except across middle of base; median line strongly impressed and placed in a longitudinal depression; two setigerous punctures on each side, both placed on the marginal border a little within its edge, the anterior a little behind the anterior angle, the posterior a little behind the posterior angle. Elytra subcordate ( $13.75 \times 9.6$  mm.), widest a little behind the shoulders, truncate on base, rounded at shoulders, widely rounded behind, convex, very declivous behind; border widely reflexed, indistinct on the basal declivity, thickened at each humeral angle to form a wide, short, hardly prominent projection; a strong puncture on the disc of each elytron just above the posterior declivity; basal declivity very deep and

abrupt; two or three punctures, in a row, on internal half of base of each elytron; a row of fine punctures along lateral margins; suture forming a deeply impressed channel; inflexed margin very wide. Prosternum widely channelled between the coxæ, with two setigerous punctures on each side near inner margin of coxæ. Four posterior legs light; anterior tibiæ not wide at apex, pluridentate externally; the three anterior teeth very strong, those above them (four) smaller but prominent; inferior ridge strongly and closely serrate, extending along whole length of under side of tibiæ; apical plate narrow, with an acute projection from apex below tarsus; intermediate tibiæ ciliate, without an external spur at apex.

Length 25, breadth 9.6 mm.

*Hab.*—MacDonnell Ranges, Central Australia.

For the single specimen in my collection I am indebted to C. French, Esq.

The affinity of this species is evidently towards *C. rectangulare*, MacL., but it is very distinct from, and has apparently but little resemblance to, that species.

#### CARENUM IRIDESCENS, n.sp.

Elliptic-oval, convex, smooth, shining; elytra bipunctate with wide inflexed margins and weakly developed humeral projections; legs light, anterior tibiæ tridentate.

Head, under surface and legs black; prothorax widely margined with green, the disc black; elytra metallic green with bluish reflections becoming dark blue near suture, inflexed margins greenish-black. Head subquadrate (3.3 × 5.1 mm.), smooth; frontal sulci short, straight and lightly divergent backwards, curving outwards in front in a lightly marked course; pre-ocular sulcus wide, shallow; pre-ocular prominence prominent; eyes convex, not prominent; one supra-orbital puncture on each side. Antennæ slender, lightly compressed; apical joint subfusiform. Prothorax transverse (4 × 6.6 mm.), convex, rounded on sides; anterior margin truncate; anterior angles shortly and obtusely advanced; posterior angles rounded off; base shortly and narrowly

lobate in middle, a light sinuosity on each side of lobe ; border reflexed, a little wider at posterior angles, narrow and obsoletely emarginate on basal lobe ; marginal channel narrow along sides, wider at posterior angles, not crossing basal lobe ; median line strongly impressed ; no trace of the usual marginal punctures. Elytra oval, hardly as wide as prothorax ( $10.25 \times 6.5$  mm.), convex ; shoulders and base rounded ; base roundly declivous to peduncle ; apex widely rounded ; lateral margin wide behind shoulders ; border hardly reflexed, ending at shoulders in a very short upturned projection ; two or three punctures on base of each elytron ; a row of umbilical punctures along lateral margins ; a strong puncture on each elytron, placed at about the middle of the width, just before the posterior declivity ; suture strongly impressed. Prosternum widely channelled between the coxæ, two or three punctures on each side near inner margin of coxæ. Anterior tibiæ narrow, tridentate, a short prominent triangular tooth above the three large ones ; inferior ridge serrate, a strong tooth projecting downwards from apex of apical plate ; intermediate tibiæ ciliate, without an external spur at apex.

Length 19, breadth 6.6 mm.

*Hab.*—Interior of South Australia.

The affinity of this species is to *C. rugatum*, Blkb., (naturally a smooth shining species variable in colour, being sometimes of a beautiful steel-blue), from which, however, it differs in colour and in the shape of the prothorax and elytra ;—in *C. rugatum* the posterior angles of the prothorax are not so much rounded off and the sinuosity on each side of the basal lobe is far more strongly marked, and the elytra are wider and truncate at the base.

Given to me by C. French, Esq., as coming from the interior of South Australia. A second specimen, larger than the one described above, is in his collection.

CARENUM VIRESCENS, n.sp.

♂. Robust, convex ; prothorax transverse, rounded at posterior angles ; elytra broadly oval, bipunctate, inflexed margin wide ; anterior tibiæ tridentate.

Shining ; head black with a faint green reflection on gulæ, a small green spot on each side below supra-orbital puncture, suborbital channel green ; prothorax very widely margined with green, the disc and middle of anterior margin black ; undersurface black with green reflections on inflexed margin, episterna and anterior part of prosternum ; elytra including inflexed margins green, a narrow part of the disc on each side of the suture blackish-blue ; legs and body black ; mesosternal episterna green. Head large, subquadrate ( $4.75 \times 7$  mm.), smooth ; frontal sulci nearly parallel, diverging lightly backwards, turning sharply out in front in a well-marked linear course ; pre-ocular sulcus well-marked ; pre-ocular process small ; eyes deeply set in orbit, not prominent. Antennæ slender, hardly compressed, attenuate to apex ; second joint much shorter than third ; apical narrow, elongate. Prothorax transverse, a little broader than elytra ( $5.8 \times 9.5$  mm.), subconvex ; sides lightly rounded, narrowed in front ; anterior margin very lightly emarginate, the angles strongly and roundly advanced ; posterior angles rounded ; base rounded, lobate, the sinuosity on each side of the lobe strongly marked, lobe narrow, lightly sinuate in middle ; border widely reflexed, hardly wider at posterior angles, thick, and declivous in front, on basal lobe ; marginal channel wide, not crossing the basal lobe ; median line strongly impressed, linear ; a strongly marked, arched, transverse line connecting the marginal channel of each side, and defining the basal lobe ; two marginal punctures on each side, the posterior placed as usual, the anterior about mid-way between it and the anterior angle. Elytra barely as wide as prothorax, widely oval ( $13 \times 9.3$  mm.), strongly and evenly rounded on sides, convex ; base truncate, declivous ; margin wide, particularly on each side of apex ; border strongly reflexed, obliquely declivous on base, thickened at each humeral angle to form a short, strong, out-turned prominence ; a strong puncture on apical third of each elytron, about mid-way between margin and suture ; basal declivity finely and irregularly punctate ; a row of closely-placed, strong punctures along lateral margins ; suture forming a deeply-marked channel ; inflexed margin very wide.

Prosternum widely and lightly channelled between coxæ; a row of four or five setigerous punctures extending along each side of prosternum, near the coxæ, from base to a little in front of coxæ. Legs strong; anterior tibiæ tridentate, the upper tooth not prominent; three light external projections above large teeth; inferior ridge serrate, extending along middle of lower side of tibiæ to apex; apical plate with a strong acute tooth projecting from apex below the tarsus.

Length 26, breadth 9.5. mm.

*Hab.*—Murchison River District, West Australia.

In the collection of C. French, Esq.

This species has a strong general resemblance to *C. habitans*, Sl., from which, however, it can be readily distinguished; the frontal sulci not diverging strongly backwards, the prothorax more rounded on the sides, and more narrowed towards the front, with a more strongly marked basal lobe (which is lightly sinuate in the middle, not evenly rounded as in *C. habitans*), and the more convex elytra, with the sides less rounded behind the humeral angles, are among the features which help to distinguish them. A row of four or five setigerous punctures extends along each side of the prosternum, near the coxæ, from the base to a little in front of the coxæ; in *C. habitans* one or two setigerous punctures are found on each side of the prosternum, near the base.

#### CARENUM INTERRUPTUM.

*C. interruptum*, MacL., Trans. Ent. Soc. N.S.W., 1865, i. p. 181; *C. castlenau*i, Chaud., Ann. Soc. Ent. Belg., 1869, p. 141; *C. occultum*, MacL., Trans. Ent. Soc. N.S.W., 1871, ii. p. 97.

I have previously published the synonymy of *C. castlenau*i, Chaud., with *C. occultum*, MacL.,\* and now have sufficient evidence to justify me in placing both as synonyms of *C. interruptum*, MacL. Specimens are in my collection from Goulburn and Merriwa (Upper Hunter), in N.S.W.; and from Wallangarra, in Queensland.

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\* P.L.S. N.S.W., 1891, vi. (2) p. 431.



It may further be noted that I have collected specimens of *C. purpureo-marginatum*, Macl., at Coonabarabran (the original locality), and can find no satisfactory differences between it and *C. interruptum*; it may however perhaps be maintained as a geographical race, or variety. In regard to *C. sexpunctatum*, Macl. (= *C. arenarium*, Sl.) though a brighter and usually larger insect than *C. interruptum* it might also easily be looked upon as a variety of that species. I expect both *C. purpureo-marginatum* and *C. sexpunctatum* will ultimately be merged with *C. interruptum*, or reduced to the rank of varieties.

#### CARENUM SUBMETALLICUM.

*C. submetallicum*, Macl., Trans. Ent. Soc. N.S.W., 1871, ii. p. 98.

This is a distinct species from *C. brisbanense*, Casteln. Since publishing the opinion that they were synonymous\* I have obtained a specimen of *C. brisbanense*, which I have been able to compare with the type of the species in the Howitt Collection, and so make sure of its identity. It differs from the specimen of *C. submetallicum* in my collection, being more brightly coloured, more elongate and parallel in shape, and more convex; the position of the anterior discoidal punctures of the elytra differs, being nearer the shoulders in *C. brisbanense* than in *C. submetallicum*.

#### Genus EUTOMA.

This section of the *Carenides* seems a difficult one to separate definitely from *Neocarenum*, and from the *quadripunctatum*, *scaritioides*, and *bonellii* groups of *Carenum*. To me it seems an artificial genus of doubtful value, but as it is generally recognised, and its use is convenient, it may be maintained, at least till a thorough and sound system of arranging the *Carenides* into genera shall have been adopted. Its chief noteworthy features seem to be the following :—

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\* P.L.S.N.S.W., 1891, vi. (2) p. 431.

Form narrow, cylindric; head large, convex, with a light transverse impression behind, and deep frontal sulci diverging strongly backwards; maxillary palpi triangular, the penultimate joint very short and thick; labial palpi broadly securiform; antennæ sub-moniliform, incrassate; elytra with lateral margin thick, convex, and very narrow behind first ventral segment; the border forming an upturned projection at the shoulders; anterior tibiæ bidentate; anterior femora short, dilatate, channelled on lower side and with a short, deep sinuosity near the apex; intermediate tibiæ with an acute short external tooth at apex.

#### EUTOMA BIPUNCTATUM.

*Carenum bipunctatum*, MacL., Trans. Ent. Soc. N.S.W., 1863, i. p. 60; *E. newmani*, Casteln., Trans. Roy. Soc. Victoria, 1868, viii. p. 140; *E. loddonense*, Casteln., l.c. p. 142; *E. punctulatum*, MacL., Proc. Linn. Soc. N.S.W., 1887, ii. (2), p. 130.\*

I have already published the opinion that *Eutoma punctulatum*, MacL., = *E. newmani*, Casteln.†; and, having now obtained more

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\* It is my belief that *E. bipunctatum*, MacL., will be found to be identical with *E. tinctillatum*, Newm., though the evidence in my hands is insufficient to warrant my publishing this as an undoubted fact. Sir William Macleay's species *E. subrugulosum* and *E. substriatulum* seem from description the same species, and identical with the species de Castelnau regarded as *E. tinctillatum*. *E. undulatum*, MacL., (I have a specimen from Yass), must also, I think, be placed under *E. tinctillatum*; also *E. leve*, Casteln., (I have a specimen from Sydney). Slight differences in size and in the amount of the elytra overspread with a blue tinge, cannot be regarded, in themselves, as of sufficient importance to be of specific value, nor is the mere presence of rows of obscure punctures on the elytra enough, in itself, to separate a specimen specifically from others that may have smooth elytra; as these punctures may be produced on naturally smooth Carenides by leaving the specimens in spirits of wine for a time, when fresh. In regard to *E. glaberrimum*, MacL., I have a specimen from the Mudgee district, determined from comparison with the type in the Macleay Collection, which, though apparently somewhat broader, I cannot separate from *E. bipunctatum*, MacL.;—from description *E. mastersi*, MacL., should be the same as my Mudgee specimen.



specimens of *Eutoma*, must record my conviction that both these names should merge with *E. bipunctatum*, Mael., and further, that a species which is common on the sandhills along the Murray, which seems undoubtedly *E. loddonense*, Casteln., is identical. The localities of my specimens are Coomoooolaroo, near Rockhampton, Q. (Barnard), Castlereagh and Murray Rivers, N.S.W. (Sloane).

*EUTOMA FRENCHI*, n.sp.

Narrow, cylindric, smooth; prothorax with three marginal punctures on each side; elytra quadri-punctate.

Shining metallic green with bluish tints, legs, mesosternum, and metasternum black; the bluish tints more marked on head and prothorax, the under-surface of these rather blue than green. Head large ( $2.5 \times 3$  mm.), convex; frontal sulci deep, narrow, long, oblique, converging forwards in a straight course with a short sinuosity in front, their outward course interrupted before the clypeal puncture, very lightly marked between it and anterior margin of head; clypeal puncture strongly impressed; pre-ocular process conspicuous, not divided from the space between the eye and the frontal sulcus; eyes very deeply inclosed in orbits; the post-ocular prominences almost equalling the eyes in size. Prothorax a little longer than broad ( $3.5 \times 3.25$  mm.), convex, declivous behind; sides almost parallel before the posterior angles, shortly narrowed behind them; anterior margin truncate, the angles lightly and narrowly advanced; posterior angles rounded; base widely and roundly sub-lobate in middle; a very light sinuosity on each side of the middle part of the base, border narrow, lightly reflexed, everywhere of equal width, without any sinuosity on middle of base; marginal channel very narrow; median line lightly marked; a distinct transverse line defining the basal part; three marginal punctures on each side, as in *Carenum bonellii*, &c. Elytra narrow, subcylindric ( $7 \times 3.5$  mm.), very lightly rounded on sides; base truncate, roundly declivous to

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† P.L.S.N.S.W. 1891, vi. (2), p. 431.

peduncle ; shoulders hardly marked ; border narrow, forming a very faint vertical projection at the shoulders, and a thick rounded edge along the sides, as usual in the genus ; each elytron with two strongly impressed punctures on the disc, the anterior placed a little distance from the base, and rather nearer the suture than the margin, the posterior on the apical third, about midway between the suture and the margin ; four or five strong punctures on base of each elytron, not placed in a depression near the shoulder ; a row of separate ocellate punctures along lateral margins—these more closely placed behind the shoulders ; suture strongly impressed. Prosternum hardly impressed between the coxæ. Femora dilatate in middle ; anterior very wide, compressed, channelled below ; anterior tibiæ bidentate, and otherwise as usual in the genus ; intermediate tibiæ wide at apex, with a strong acute spur externally.

Length 13·75, breadth 3·5 mm.

*Hab.*—North Queensland.

This beautiful species is one of the many novelties sent me by C. French, Esq., who informs me it comes from Queensland, inland from Cooktown. It seems allied to *E. magnificum*, Macl., but is differently coloured both above and below ; it must also resemble *E. punctipenne*, Macl., the prothorax of which is described as having “three seta-bearing punctures in each lateral margin,” and the elytra as having “four (sometimes five) impressed punctures on each elytron in a line nearer to the lateral margin than to the suture ;” yet Sir William Macleay places it in the group with two punctures on the elytra in his list of species in 1887.\*

#### Genus NEOCARENUM.

The following are apparently the most typical features of this genus :—

Form elongate and parallel-sided ; antennæ moniliform, lightly incrassate ; head with the space between frontal sulci and sides

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\* P.L.S. N.S.W., 1887, ii. (2) p. 119.

but lightly convex before the eyes, and crossed by a well-marked pre-ocular sulcus; margin of elytra narrow behind first ventral segment; the humeral projections of the elytral border strong and erect; anterior tibiæ bidentate; the apical plate narrow and projecting downwards at apex in a strong triangular prominence; intermediate tibiæ with a strong external spur at apex.

As points distinguishing it from *Eutoma* the following may be noted:—The spaces between the frontal sulci and the sides of the head (in *Eutoma* roundly convex before the eyes, with the pre-ocular sulcus indistinct across them), the margin of the elytra (in *Eutoma* thick, and forming an evenly rounded *bead* or edge to the elytra), the apical plate of anterior tibiæ (in *Eutoma* broad and obtuse at apex).

I place in *Neocarenum* the two following species, though they are both so extremely isolated that I feel doubtful if I am right in not forming a new genus for each; however, as their affinities are, in a general way, towards *Neocarenum*, and as I am, with my present imperfect knowledge of the tribe, loth to form new genera among the *Carenides*, I prefer to include them in *Neocarenum*, giving descriptions to show their many points of difference from one another and from all other species known to me.

#### NEOCARENUM ANGUSTATUM, n.sp.

♂. Very elongate, subcylindric; black, smooth; elytra of same width as prothorax, a row of widely-placed strong punctures extending along middle of each elytron from shoulder to apex; anterior tibiæ bidentate.

Head large, convex ( $4.25 \times 5.5$  mm.), 'obsoletely transversely impressed behind; frontal sulci strongly impressed, very divergent backwards, curving sharply out in front in a strongly marked course; pre-ocular sulcus lightly marked, arched; pre-ocular process not prominent; clypeus with a strongly projecting tooth at each side of labrum; the anterior margin trisinate between these teeth, the sinuosities about equal and forming a well-marked

projection on each side of middle one; eyes not prominent; two supra-orbital punctures on each side. Mandibles long and strong. Mentum with lobes long and narrow; median tooth strong, elongate. Palpi with last joint strongly securiform, that of labial very widely so. Antennæ (only seven joints remaining in specimen before me) submoniliform; second joint hardly (if at all) shorter than third. Prothorax a little longer than broad ( $6.5 \times 6$  mm.), subcylindric, not declivous behind; sides subparallel, not narrowed in front, lightly and roundly narrowed behind; anterior margin truncate, the angles rectangular; base wide, evenly rounded; border very narrow, not reflexed along sides, except very lightly at the place of the posterior angles, narrower behind these, causing a slight sinuosity before the base, well marked and without any sinuosity on base; marginal channel very narrow and lightly marked; median line strongly impressed, crossed by fine striolæ; a light transverse impression a little before the base; two marginal punctures on each side, the anterior considerably behind the anterior angle; inflexed lateral margin narrow, not projecting from episterna. Elytra elongate ( $13.5 \times 6.25$  mm.), subcylindric; the disc a little depressed near suture; sides subparallel, a little narrowed to shoulders, very lightly rounded; apex broadly rounded, obsoletely sinuate on each side near suture, causing the tip of the elytra to project obtusely a little; base broadly emarginate, almost vertical, without punctures; shoulders prominent, with a strong erect conical projection; margin very narrow; border finely reflexed; a row of punctures along margin as in *N. parviceps*; five or six widely-placed, strongly-impressed punctures extending in a row down middle of each elytron from shoulder to apex, the apical two or three of these punctures double; two or three other widely-placed, strong punctures on apical part of each elytron, between the middle row and the margin; suture linear, deeply impressed, inflexed margin very narrow, as in *N. elongatum*, MacL. Proster-num flat between the coxæ, hardly impressed; a lightly marked divergent process on each side of base near peduncle. Anterior femora thick, not channelled below, not greatly arcuate on

external side; tibiæ narrow, bidentate, a small external prominence above upper large tooth; inferior ridge with two or three dentiform projections; intermediate tibiæ not very wide, with a strong external apical tooth; posterior legs long and light.

Length 27, breadth 6.25 mm.

*Hab.*—Nullabar Plains, near Eucla (in the collection of C. French, Esq.).

NEOCARENUM PARVICEPS, n.sp.

♂. Form rather elongate, robust; black, smooth; head small; prothorax depressed, broader than long, rounded on sides, without a border on base; elytra impunctate, narrower than prothorax, narrowed to base.

Head small ( $3.25 \times 4.75$  mm.), depressed, lightly transversely impressed behind; frontal sulci very strongly impressed, diverging in a rather sinuous course backwards, curving lightly out in front in a well-marked course; pre-ocular sulcus strongly marked, curving inwards; pre-ocular process prominent, projecting roundly; eyes round, rather prominent, projecting but little beyond the pre-ocular processes; suborbital channel divided by a longitudinal ridge, the lower branch dividing the genæ from the gulæ; three supra-orbital punctures on each side. Mandibles short. Mentum with lobes long, narrow; median tooth strong, pointed, nearly equal to the lobes in length. Palpi with last joint strongly securiform, that of the labial very widely so. Antennæ short, submoniliform; joints 5-11 about equal, short, compressed; apex obtuse; second joint short, not longer than third. Prothorax broader than long ( $6 \times 7$  mm.), depressed; sides rounded, widest about middle, roundly narrowed behind; a light short sinuosity near each basal angle behind the lateral border; anterior margin truncate, hardly emarginate; anterior angles broadly rounded, not advanced; posterior angles not marked; base wide, not bordered, rounded in middle, with an obsolete sinuosity towards each side; lateral borders thick, not reflexed, extending round anterior angles, not reaching the base; marginal channel narrow

distinct; median line merely forming a faint linear impression on disc; two marginal punctures on each side, the anterior placed in the marginal channel near anterior angles; inflexed lateral margin projecting strongly from the episterna. Elytra subcylindric, not attaining the breadth of the prothorax ( $12 \times 6.75$  mm.), impunctate, narrowed at shoulders, widest behind middle, lightly rounded on sides, widely rounded at apex; base subtruncate, a little emarginate between the shoulders, strongly declivous; shoulders prominent, with a strong erect short obtusely conical projection; margin very narrow; border finely reflexed; two or three small punctures on base of each elytron near shoulder; a row of light punctures along lateral margins, more closely placed in front; suture very strongly impressed; inflexed margin acclivous, narrow, but wider than in *N. elongatum*, Macl. Prosternum very lightly and roundly excavate between the coxæ; the posterior margin triangular; a strong divergent process on each side of base near peduncle. Ventral segments rugulose. Legs short: femora short, thick; anterior very lightly channelled below, a light apical sinuosity on their anterior edge; anterior tibiæ short, narrow at base, wide towards apex, bidentate, a very short external tooth a little above the base of upper large one; inferior ridge with three widely separated projections, the two anterior ones dentiform; apical plate narrow, pointed at apex and produced sharply downwards; intermediate tibiæ short, wide towards apex, armed at apex with a long pointed tooth, directed obliquely forwards; posterior coxæ impunctate; posterior trochanters very short, their posterior margin rotundate, their apex forming a little point.

Length 23, breadth 7 mm.

*Hab.*—Nullabar Plains, Eucla. I am indebted to C. French, Esq., for a specimen, and another is in his collection.

#### CARENIDIUM SUPERBUM.

*Carenum superbum*, Casteln., Trans. Roy. Soc. Victoria, 1868, viii. p. 135; *Carenidium kreusleræ*, Macl., Trans. Ent. Soc. N.S.W. 1869, ii. p. 70; *C. lacustre*, Macl., l.c. p. 326.



Since publishing the identity of *Carenidium kreusleri*, MacL., with *C. lacustris*, MacL.,\* I have seen the type specimen of *Carenium superbum*, Casteln., in the Howitt Collection, and having compared with it a specimen of *C. kreusleri*, MacL., am able to state positively that they are one species. It is naturally a smooth species, and the rows of shallow punctures on the elytra, alluded to in de Castelnau's description, have evidently been produced by artificial means.

#### Genus CONOPTERUM.

This genus was founded by Baron de Chaudoir for a species that he named *C. insignis*, and which must be very nearly allied to, if not identical with, *Conopterum barrowi*, MacL. Unfortunately the Baron omitted to give the size of his species when describing it.

#### CONOPTERUM RIVERINÆ.

*Carenium riverinæ*, MacL., Trans. Ent. Soc. N.S.W. 1865, i. p. 181; *Carenium amabile*, Casteln., Trans. Roy. Soc. Victoria, 1868, viii. p. 185.

I have compared a specimen of *C. riverinæ*, MacL., in my collection with de Castelnau's type of *Carenium amabile* in the Howitt Collection, and find them the same species.

*C. riverinæ* is the only *Conopterum* of which I have collected specimens, viz., two taken last spring about thirty miles south of Narrandera: both were males and had the prominent horn on the left mandible, which is so marked a feature in this genus; another specimen, found dead and broken, is without the mandibular horn, so there seems every probability the late Sir William Macleay was right in his surmise that this is a sexual feature of the male.

#### Genus TERAYIDUM.

Some time ago I received from Mr. C. French a specimen of this genus as coming from Nicol Bay. It is in a very bad state of preservation, having been picked up dead; the antennæ, palpi,

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\* Proc. Linn. Soc. N.S.W. 1891, vi. (2), p. 492.

and three of the legs are wanting, and the colour is faded out by the sun. I have been unable to see the description of *T. macra*, Bates, to find if it may be that species. Comparing it with a specimen of *Monocentrum longiceps*, Chaud., an evident affinity is noted; but my specimen of *Teratidium* is too imperfect for any satisfactory notes on their points of resemblance or difference to be made; the *Teratidium* is, however, a much broader insect.

Since my former note on the *Carenides*, and previously to this paper, the following species have been added to the tribe:—

*Eurycephus ebeninus*, Sl.; *E. chaudi*, Blackb.; *E. eulicollis*, Blackb.; *Philoscapus duboulayi*, Blackb.; *Carenum habitans*, Sl.; *C. habile*, Sl.; *C. vicinum*, Sl.; *C. ignotum*, Sl.; *C. lepidum*, Sl.; *Trichocarenum elderi*, Blackb.

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#### ADDENDUM.

At p. 26, in my remarks on *Megacephala frenchi*, Sl. I have expressed the opinion that (judging from the description) *M. howitti*, Casteln., would in all probability prove to be synonymous with *M. cylindrica*, MacL. When this was written I had not seen a specimen of *M. howitti*; but having recently seen one of Count de Castelnau's type-specimens in the Howitt Collection at the Melbourne University, I am able to note that it is a very distinct species from *M. cylindrica*, being a much shorter insect with wider and more oval elytra.—T. G. S., 29th Jan., 1894.